

2 JUN 94
REPORT
ON THE
SANITARY CONDITION
OF
ECCLESHILL,
DURING THE YEAR 1893,

BY
JNO. PITNEY ASTON, M. O. H.,

FELLOW OF SOCIETY MEDICAL OFFICERS OF HEALTH.
Visiting Medical Officer Calverley Conjoint Infectious Disease
Hospital ;
Late Medical Superintendent West of England Hydro.

"IN OMNIBUS SANITAS."

PUDSEY :
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ECCLESHILL LOCAL BOARD OF HEALTH,

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EGGLESHILL SANITARY DISTRICT.

MEDICAL OFFICER'S REPORT FOR 1893.

Topography.—Eccleshill forms with Calverley, Idle, Farsley and Pudsey, the Calverley Conjoint Infectious Hospital District with a Joint Hospital Board made up of representatives from the respective Local Boards of Health for the 5 Towns, each of which is the Urban Sanitary Authority for its respective Township. The aggregate population of these 5 Towns at the census of 1891, was 36,343, or an average population of 7,268 but varying from 2,525 in Calverley to 13,444 in Pudsey. The population of Eccleshill in the 1891 Census was 7,928 and is estimated as having been 8,200 in the middle of 1893.

Eccleshill itself is ham or mutton leg shaped, with the knuckle or North end at Apperley Bridge over the River Aire, and the broad or South end at the crown of the hilly ridge which separates the Bradford basin on its North East side from the Aire Valley. The distance between the River Aire on the North of Eccleshill and the Bradford Boundary on the South side of Eccleshill is $2\frac{1}{2}$ miles, and the District falls from 750 feet above sea level at the Bradford Boundary to about 150 feet above sea level at the River Aire. The elevated portion of the Township adjoining Bradford forms the South or Undercliffe Ward, the portion adjoining the river Aire and forming part of the Aire Valley at Apperley, is called the North or Greengates Ward, and the Middle portion constitutes the Central Ward or Eccleshill proper. The respective population of the Wards was not taken at the Census but, roughly, is in proportion of 3-3-2 the last figure representing the population of the North Ward as compared with the Central and South Wards. The South Ward has the larger proportion of new residential property and has no Manufactories within it, its inhabitants being more largely connected with Bradford. The Central and North Wards constitute the woollen manufacturing portions, and contain chiefly the older families, and a large proportion of old dwellings, especially of the cottage character. But the cottage property in the South Ward, although newer, is much more of the back to back type, and much more jerry built. The South and Central Wards are open, elevated and bleak in aspect, with scarcely any trees. The North Ward is more sheltered by reason of the Ravenscliffe Wood on the East, and the Yeadon, Guiseley and Ilkley elevation on the North of the Aire valley. It is fairly wooded, and more humid and foggy than the other Wards.—The subsoil is chiefly stiff clay, but sandstone and gravel obtain to some extent, especially in the lower portions of the District. As regards the Conjoint Townships, Idle forms the North West Boundary, and Calverley-with-Farsley and Pudsey beyond, the East and South East Boundary.—Eccleshill compares favourably in its educational and social aspects, with all its neighbours, since it preceded them all by many years in the adoption of the Education Act, and of a systematic notification of Infectious Diseases, in which latter respects even now ^{it} is ahead of Bradford and Leeds, while its fellow towns, Pudsey and Farsley are

yet without this primary essential of sanitation, and Calverley has only adopted the Notification Act, whereas in Eccleshill both that and the Diseases Prevention Act are in force. In 1875 Eccleshill went in for a system of main drainage, for the whole Township, (which by 1878-80 was almost carried out), along with an irrigation Farm of 114 acres, and in 1890 the Authority provided precipitation tanks and $9\frac{1}{2}$ acres of land at Apperley for that portion of the drainage not dealt with by means of ^{by the m.o.w.} the irrigation Farm.— The Drainage and Sewage Farm scheme was estimated to cost £40,000 and in 1883, £33,856 had been spent.* At present the amount that has been spent under this head is £37,000, and there is an annual payment of £2133, including capital and interest in connection therewith. The Local Board rates amount to 3s. 4d. in the £ per annum, yielding £3,400 on a rateable value of about £23,000. The Local Board rates for Idle are 5/6, Pudsey 2/10, Farsley 2/4, Calverley 1/8 per annum. A Medical Officer of Health was first appointed in 1873, and since 1875 Notification of Infectious Diseases has obtained in the District, and includes all epidemic Infectious Diseases except Influenza. As already stated in 1878 a system of drainage for the whole Township was undertaken, and the following facts are interesting :—

VITAL STATISTICS.

						Per 1000 of estimated population.	
The Mean Annual Birth Rate for 5 years 1874 to 1878 inclusive was 39.8							
The	„	„	„	„	1879 to 1884	„	„ 30.8
The	„	„	Death Rate	„	1874 to 1878	„	„ 21.5
The	„	„	„	„	1879 to 1884	„	„ 17
The	„	„	Zymotic Death-Rate	„	1874 to 1878	„	„ 3.2
The	„	„	„	„	1879 to 1884	„	„ 1.5

The Birth-Rate for the year 1893 was 24.87.

The Death-Rate „ „ 14.33

Table showing mean annual chief Zymotic Deaths in two quinquennial periods
1874-78 inclusive and 1879 -83 inclusive.

Small Pox	...	0.01	...	—
Scarlet Fever	...	8.0	...	1.8
Diphtheria	..	0.5	...	0.5
Whooping Cough	...	3.9	...	2.0
Enteric (Typhoid) Fever		2.1	...	1.1
Diarrhoea	...	18.0	...	8.0
Totals...		32.51	...	13.4

The above Tables show an annual reduction of 19.11 chief zymotic deaths in the quinquennial period, after the Drainage system was taken in hand, as compared with the preceding 5 years, and a mean annual reduction of 4.5 per 1000 of population in the Death-rate in the same period. It will also be noticed that the Death-rate for 1893 was 7.2 per 1000 of population below the mean annual Death-rate of the 5 years, 1874 to 1878 inclusive.

* The Engineer's estimate was £20,000

Table showing Birth, Death, Infantile Mortality, Zymotic and Phthisis Death-rates for 20 years, 1874-1893 inclusive.

Years.	Births per 1000 of Population.	Death-rate per 1000 of Population.	Zymotic Death- rate per 1000 of Population.	Phthisis (Consumption) Deaths per 1000 of Population.	Deaths under 1 year per 1000 Births.
1874	40	19.3	3.9	1.4	157
1875	40	23.2	4.7	2.4	165
1876	36.6	23.1	2.5	3.1	180
1877	41.4	16.7	1.3	2.	122
1878	41.4	25.3	3.7	2.7	207
1879	31.1	18.4	1.7	2.6	142
1880	36.6	17.6	2.7	2.02	138
1881	32.1	15.4	1.3	2.1	105
1882	26.8	17.2	1.4	2.3	166
1883	27.7	16.6	0.68	1.1	159
1884	29.9	16.1	2.3	1.7	100
1885	28.62	15.13	.8	1.2	113
1886	31.13	18.13	2.1	1.7	134.45
1887	27.63	18.02	1.2	2.4	152.38
1888	28.83	16.62	1.3	1.9	108.1
1889	23.84	18.71	.89	1.5	219.
1890	26.20	19.87	2.02	2.02	198.06
1891	22.25	16.62	.63	2.3	174.86
1892	22.46	14.44	.86	1.4	115.38
1893	24.87	14.33	1.9	1.3	97.5
Mean of 5 yrs. 1874-78	39.8	21.5	3.2	2.3	166.2
„ „ 1879-83	30.8	17.04	1.5	2.2	142
„ „ 1884-88	29.	16.6	1.5	1.7	121.4
„ „ 1889-93	24.8	16.7	1.26	1.4	160.6
Total Mean of 20 yrs. 1874-1893.	31.1	17.93	1.89	1.9	147.5

Notes.—A Local Board of Health was first formed in 1854 and in 1853 the Death-rate was 24.45 per 1000 of population, which was then considered an extremely low one, as the average Death-rate for several years prior to this had been over 30 per 1000 of Population. The Consumption Death-rate in 1853 was 4.68, and the Zymotic Death-rate, 2.86 per 1000 of population. 1874 was my first year of office as Medical Officer of Health. In 1885 I resigned my appointment, and at the end of 1890 was re-appointed. 1874 to 1880 was a period of ^{high} commercial prosperity. In my Annual Report for 1890 I suggested Lead Poisoning was operating prejudicially on the Public Health, and in 1891 developed an agitation in connection therewith, leading to the wholesale use of Animal Charcoal filters, and in the Spring of 1892 to the hardening of the Water Supply by the Bradford Corporation. The Local Board of Health began to pay for Medical Notification of Infectious or Zymotic Disease at the Close of 1875, and at the same time decided to sewer the Township, which provision came into operation in 1878.—J. P. A.

ECCLESHILL URBAN SANITARY DISTRICT.

Population in 1871, 5623.
Population in 1881, 7037.
Population in 1891, 7928.

Estimated Population to middle of 1892, 8200.

Area in Acres, 1272.
Persons per Acre, 6.44.

Vital Statistics for the Year Ending December 31st, 1893.

* Registered Births—Males, 114; Females, 91; Total 205.
Registered Deaths—Males, 69; Females, 49; Total 118.
Surplus Births—Males, 35; Females, 42; Total 77.
Equal to an annual rate of 24.87 per 1000 of Population.
Equal to an annual rate of 14.33 per 1000 of Population.
Equal to an annual increase of 10.54 per 1000 of Population.

Mortality from all Causes according to Divisions and Sex.

DISEASES.	South Ward (UNDERCLIFFE.) Population 3200.	Central Ward (TOWN.) Population 3000	North Ward (GREENGATES.) Population 2000	SEX.		Total at all Ages
				M.	F.	
(a) Influenza	3			2	1	3
Small Pox	1			1	1	2
Scarlet Fever	1				2	2
Typhoid or Enteric Fever	1				1	1
(b) Diarrhoea	2	2		2	2	4
Rheumatic Fever... ..		1		1		1
Phthisis (Consumption)	4	4	3	9	2	11
Tubercular (other than Phthisis)	2	2	2	4	2	6
Bronchitis, Pneumonia, &c.	9	11	3	12	11	23
Heart	6	3	5	11	3	14
(c) Injury	1					1
Parturition	1	2	1		4	4
Old Age	1	3			6	6
Cancer	1	1	2	2	2	4
Infant Wasting Disease... ..	2	5	2	4	5	9
Infant Convulsive Disease	4	2		4	2	6
Brain and Spinal Cord	7	2	2	6		11
Gastro-Enteritis	1			1	1	1
(d) Liver	1	2		3		3
Urinary Organs		1		2	3	3
Diabetes Mellitus.. ..				1	2	2
Chronic Rheumatism	1			1		1
(e) Inquest	1		1	2		2
Annual Rate per 1000 of Population	53	41	24	69	49	118
	16.3	13.6	12	8.4	5.9	14.33

Notes. * Of the Registered Births 3 were Illegitimates. (a) No Death from Small-Pox occurred between 1874 and 1893.
(b) Two of the Diarrhoeal deaths were registered as from Choleraic^{case of} Diarrhoea but the cases were not notified during the illness.
(c) The death from Injury was in a boy 7 years of age, who after being struck by a stone thrown in play developed fatal Meningitis.
(d) 2 of the deaths from Hepatic disease were from Cirrhosis of Liver.
(e) The 2 Inquest cases were of persons found dead in bed. There were also Inquests on 2 other cases of sudden death, including that of Doctor George Newstead, who had practised in the town over 50 years.

Table of Deaths during the Year 1893, in the Urban Sanitary District of Eccleshill, classified according to DISEASES, AGES and LOCALITIES.

The subjoined numbers have been taken into account in the above records of mortality.

Under 5	2	1
5 upwds.	2	1

B.

Table of Population, Births, and of New Cases of Infectious Sickness, coming to the knowledge of the Medical Officer of Health, during the year 1893, in the Urban Sanitary District of Eccleshill; classified according to DISEASES, AGES, and LOCALITIES.

Names of Localities adopted for the purpose of these Statistics; Public Institutions being shown as separate localities.	POPULATION AT ALL AGES.		Registered Births.	Aged under 5 or over 5.	NEW CASES OF SICKNESS IN EACH LOCALITY, COMING TO THE KNOWLEDGE OF THE MEDICAL OFFICER OF HEALTH.															NUMBER OF SUCH CASES REMOVED FROM THEIR HOMES IN THE SEVERAL LOCALITIES FOR TREATMENT IN ISOLATION HOSPITAL.										
	Census 1891.	Estimated to middle of 1893.			1	2	3	4	FEVERS.					10	11	12	13	14	15	1	2	3	4	FEVERS.					10	11
					Typhus.	Enteric or Typhoid.	Continued	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Chicken Pox.	Whooping Cough.	Measles.	Rotheln.	Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued	Relapsing.	Puerperal.	Cholera.	Erysipelas.				
(a.)	(b.)	(c.)	(d.)	(e.)	Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued	Relapsing.	Puerperal.	Cholera.	Erysipelas.	Chicken Pox.	Whooping Cough.	Measles.	Rotheln.	Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus.	Enteric or Typhoid.	Continued	Relapsing.	Puerperal.	Cholera.	Erysipelas.
SOUTH WARD ..	Not Ascertained	3200	69	Under 5 5 upwds.	1 12	6 7				1					4	3 6	5 6	1 3	3 12	1 12	4									
CENTRAL WARD	Not Ascertained	3000	81	Under 5 5 upwds.		3 6				4						2 3	12 3	4 4		3 6										
NORTH WARD ..	Not Ascertained	2000	55	Under 5 5 upwds.		3 16				2							4 7	2 7		2 14										
TOTALS ..	7928	8200	205	Under 5 5 upwds. TOTALS	1 17 18	12 29 41				7 7					4	5 30	22 30	12 14	3 3	1 17 18	6 24 30									

Medical Notification of Infectious Diseases has obtained since 1875, and has been compulsory since 1890, so far as Diseases scheduled under the Notification Act go, but Medical Notification of *all* Epidemic Infectious Diseases is paid for by the Authority.

The Hospital to which the patients are removed is the Calverley Conjoint Hospital, and is situated at Calverley.

Table showing Quarterly Birth and Death Rates in 1893.

	Quarter ending March 31st.	Quarter ending June 30th.	Quarter ending Sept. 30th.	Quarter ending Dec. 31st.
Birth-rate per 1000 of Pop.	20 ...	27.31 ...	29.51 ...	24.39
Death-rate „ „ „ „	17.56 ...	13.17 ...	11.70 ...	14.14
Surplus Births over Deaths	2.44 ...	14.14 ...	17.81 ...	10.25

The Infantile Death-Rate (or Deaths under 1 year of age per 1000 Births) was 97.5.

The Child Death-Rate (or Deaths under 5 years of age per 1000 Births) was 133.

The Deaths under 1 year of age were 16.4 per cent. of the Total Deaths.

The Deaths under 5 years of age were 25.4 per cent. of the Total Deaths.

The Deaths above 60 years of age were 42.3 per cent. of the Total Deaths.

(a) The Zymotic Death-Rate from the 7 principal Zymotics was 1.9 per 1000 of population.

The Phthisis or Consumption Death-Rate was 1.3 per 1000 of population.

(b) The Respiratory Death-Rate was 4.1 per 1000 of population.

The Deaths above 70 years of age out of the 118 Total Deaths were 27.

The Deaths above 80 years of age out of the 118 Total Deaths were 7.

The oldest age at Death registered was 93 years.

The Mean Age at Death was 47 years.

Table showing Birth and Death Rates in 1893 in the Chief Divisions.

Division	Birth Rate	Death Rate	Rate of increase of Population	Mean Age at Death
South Ward ...	21.5 ...	16.3 ...	5.2 ...	37 years.
Central Ward ...	27. ...	13.6 ...	13.4 ...	45 „
North Ward ...	27.5 ...	12 ...	15.5 ...	61 „

(a) The 7 principal Zymotics are Small Pox, *Measles*, Scarlet Fever, *Diphtheria*, *Whooping Cough*, “Fevers” (*Typhus*, Enteric, *Simple*) and Diarrhoea, and there were no deaths from those printed in italics.

(b) The Respiratory Death-rate includes those from Acute Lung Diseases, viz : Bronchitis, Pneumonia and Pleurisy.

The Birth and Death returns are forwarded weekly by the Registrar of the Idle Subregistration District. The Census Return of 1891 did not differentiate between the portions of the District but I arranged at the end of 1892 with the Registrar to register the Births according to the 3 wards and the estimated population of these wards in the middle of 1893 is calculated upon the inhabited Houses as shown in the Local Board Rate Books.

Table showing Cases removed from Eccleshill to
Conjoint Hospital in 1893.

No.	Sex.	Age.	Ward.	Disease.	Admitted.	Result.	Days in Hospital.	Cost.*
1	Male	9 years	North	Scarlet Fever	Jan. 4th.	Recovered	43	
2	Female	5	Central	"	"	"	92	
3	"	1½	"	"	"	"	92	
4	"	10	North	"	" 9th.	"	53	
5	Male	13	"	"	"	"	67	
6	Female	13	"	"	" 17th.	"	59	
7	"	16	"	"	" 20th.	"	63	
8	"	3	"	"	" 23rd.	"	80	
9	Male	8	"	"	"	"	53	
10	Female	4	Central	"	" 24th.	"	38	
11	"	6	"	"	"	"	31	
12	Male	13	North	"	"	"	52	
13	"	8	"	"	"	"	59	
14	"	9	Central	"	" 26th.	"	57	
15	Female	8	"	"	Feb. 1st.	"	57	
16	Male	6	"	"	" 2nd.	"	56	
17	"	2	"	"	"	"	70	
18	Female	10	North	"	" 10th.	"	76	
19	"	6	"	"	" 15th.	Died	13	
20	"	8	"	"	" 24th.	Recovered	41	
21	Male	3	"	"	"	"	41	
22	"	4	"	"	"	"	41	
23	"	15	South	"	March 1st.	"	57	
24	"	37	Central	Small Pox	April 3rd.	"	58	
25	"	15	"	Scarlet Fever	" 8th.	"	53	
26	Female	11	South	"	" 15th.	"	61	
27	Male	8	"	"	" 16th.	"	60	
28	"	11	"	"	"	"	60	
29	"	10	"	Small Pox	" 27th.	"	34	
30	Female	15	"	"	"	"	58	
31	Male	27	Central	"	May 5th.	"	33	
32	"	28	North	"	June 4th.	Died	11	
33	Female	5	South	"	" 5th.	Recovered	44	
34	Male	34	"	"	" 6th.	"	67	
35	"	49	"	"	" 20th.	"	29	
36	"	49	"	"	" 30th.	"	65	
37	"	18	"	"	July 3rd.	"	55	
38	Female	16	"	"	"	"	57	
39	Male	37	"	"	Nov. 4th.	"	36	
40	"	64	"	"	"	"	15	
41	"	25	"	"	" 11th.	"	12	
42	Female	55	North	Scarlet Fever	" 13th.	"	20	
43	"	15	"	"	"	"	55	
44	Male	10	"	"	"	"	80	
45	Female	3	South	Small Pox	26th.	"	51	
46	Male	5	"	"	Dec. 3rd.	"	56	
47	"	6	"	"	" 9th.	"	38	
48	Female	23	"	"	" 11th.	Died	9	

	Males.	Females.	Totals.
Of the Scarlet Fever Cases	15	15	30
Of the Small Pox Cases	13	5	18
Totals ...	28	20	48

The cases admitted according to Ward Divisions were—

	SOUTH.	CENTRAL.	NORTH.	TOTALS.
Small-Pox ...	13	3	2	18
Scarlet Fever ...	4	9	17	30
Totals ...	17	12	19	

~~At the Eccleshill Conjoint Hospital~~

* The average cost per Patient was £5.18.7½

Calverley Conjoint Infectious Diseases Hospital.

Table showing Patients admitted and deaths in the hospital during 1893.

Sanitary District.	Census Population, 1891.	Small Pox.		Scarlet Fever.		Typhoid or Enteric Fever		Totals.	
		Admtd.	Died	Admtd.	Died.	Admtd.	Died.	Admtd.	Died.
Calverley	2525	3		3				6	
Eccleshill	7928	18	2	30	2			48	3
Farsley	5328	5		2				7	
Idle	7118	11		27		23	3	61	3
Pudsey	13444	17		6		1		24	1
Totals	36343	54	2	68	2	24	3	146	7

The Mortality in Hospital from the 3 chief Zymotics therefore was 4.79 per cent. of all cases admitted, which is a low Mortality.

Table showing Vital Statistics of the Conjoint Hospital Townships in 1893.

			Population 1891.	Birth Rate.	Death Rate.	Zymotic Death-rate	Infantile Death-rate	Respira- tory Death-rate
CALVERLEY...	...		2525	21	16.4	1.96	148	2.74
ECCLESHILL	...		7928	24.8	14.3	1.9	97.5	4.1
<i>Farsley</i>	...	...	5328	30	17	0.18	193	4.5
IDLE ...	...	...	7118	20.03	19.6	4.5	149.2	4.2
<i>Pudsey</i>	...	...	13444	25.9	18.4	2.8	168	3.2

The Towns printed in Italics have not adopted either the Notification or Infectious Diseases Prevention Acts and Calverley has only adopted the Notification of Infectious Diseases Act.

Table showing Plumbo-Solvency of the Bradford High Level Water Supply in Month Averages for 1892 and 1893.

Months		grs. lead per gallon				The Hardness in 1892 before the Lime Treatment was applied by the Bradford Corporation at the Thornton Moor Reservoir, averaged 1.5; in 1893 it averaged from 3. to 3.5 degrees of hardness. Moreover the tap water which formerly was acid, became distinctly alkaline in 1893. The continuous admixture of chalk with the Water as it flows into the Thornton Moor Reservoir by an automatic arrangement of Mr. Watson's, the Bradford Waterworks Engineer, was applied during June, 1892, and it will be noticed how the in the following months there was a marked and rapid diminution of Plumbo-solvency. The quantity of chalk taken up by the water varies from 2 to 3 grains per gallon.
		1892.	...	1893.		
January	...	.45	...	.17		
February	...	.33	...	.15		
March	...	.60	...	.17		
April	...	.45	...	.16		
May	...	.48	...	.11		
June	...	.65	...	.12		
July	...	.47	...	.11		
August	...	.39	...	.11		
September	...	.22	...	.11		
October	...	.27	...	.14		
November	...	.24	...	.10		
December	...	.21	...	.12		
Mean for the year		.39	...	.13		

TO THE ECCLESHILL LOCAL BOARD OF HEALTH.

GENTLEMEN,—

The Births registered in your district during 1893 were 205— or 24·8 per 1000 of estimated population. The Deaths registered in your district during 1893 were 115 or 14 per 1000 of estimated population. As 3 deaths of persons resident in your district occurred at the Calverley Conjoint Infectious Hospital we get the total of 118 deaths as the mortality of your population in the year 1893, or an annual death-rate of 14·3,

The Birth-rate is in accord with that of the last 5 or 10 years, though 5 to 7 per 1000 below the County birth-rate, and also that of England and Wales, and 15 per 1000 of population below the average birth-rate of what obtained in your district 20 years ago. The main local factor in this lowered birth-rate from a sanitary aspect has been the plumbo-solvent action of your water supply, but which happily has been largely if not altogether remedied by the lime hardening process adopted by the Bradford Corporation, as the outcome of the agitation developed by myself in 1892. The medical officers of the other 20 towns supplied by the same water supply also report that during 1893 the plumbo-solvent action steadily diminished, and that lead-poisoning practically has disappeared in connection with the water supply, and yet what a fight I had on this matter, and how I was abused, denounced and laughed at because of the outcry I made on this terribly grave and frightfully extensive subtle and malign poisoning of the population at large. Even yet not a few cases are met with where permanent crippling of health and shortening of life or development of serious and incurable disease has obtained consequent on the ingestion of lead during the time the water supply was so generally contaminated; for as a fact 90 per cent of the population were under conditions of daily lead ingestion by means of the domestic water supply in quantities (averaging $\frac{1}{4}$ gr. per gallon) that were dangerous. As you are probably aware a special commission in connection with industrial lead poisoning has reported recently on the terrible havoc wrought by lead in various trades, and it has been suggested in consequence that lead poisoning should be made a notifiable disease. It is interesting to report that the Birth-rate for 1893 was 2·41 per 1000 of population higher than in 1892 and that abortions and miscarriages have also immensely diminished in connection with the improvement I have reported. You may have noticed in the Press, that Gildersome, which substituted Morley water supply for the Bradford water on the ground of the plumbo-solvency of the latter, has recently found out that it still suffers from a lead-contaminated water supply, whereas Drighlington, which retained the Bradford supply, has got quite free of lead poisoning, thanks to my agitation and the public spirit of the Bradford Corporation when convinced of the grave state of affairs.

The Death-rate in 1892 was 14·5 per 1000, and I pointed out that was the lowest death-rate recorded in Eccleshill within the period of the appointment of a Medical Officer of Health, which is now just 20 years, since I was first appointed Health Officer for the district in September 1873. You will see that for 1893 we still have an equally low death-rate. Here I may say that from 1873 to 1885 the death-rate steadily fell from an average of 21 per 1000 to 15 per 1000 of population. From 1885 to 1890, the years in which I was absent from the district, it steadily rose; till in 1890 it was over 19 per 1000 as in 1874. During the last 3 years however it has steadily

fallen, being 16.75 in 1891, 14.5 in 1892, and 14.3 per 1000 of population in 1893. The average death-rate of the 3 years 1891-93 has been over 3 per 1000 less than in the three years 1888-90. The foregoing figures are all the more instructive when you remember that influenza, small-pox, and scarlet fever have all been amongst and about us in more or less severe epidemic form during 1891, 1892 and 1893, the years in which such a lowering of the death-rate has occurred, whereas in the preceding 5 years, when the death-rate was steadily rising, such was not the case.

Small-Pox.—This disease has been entirely absent from your district since 1874, when one death occurred. In 1871 and 1872 it prevailed in epidemic form. I am happy to say that, notwithstanding our proximity to the borough of Bradford, which forms our boundary in the south, south-west and west, and where a most severe and prolonged epidemic of small-pox has raged, we have been fortunate to have all our cases confined to the households in which the disease broke out from time to time. With 2 exceptions the Small Pox cases were removed to the Conjoint Hospital immediately on their notification. The cases which were not promptly removed were those which occurred during the time that the Conjoint Hospital Board had closed their hospital to Small-Pox cases.—As regards Vaccination, as a prophylactic measure, seeing that the Public Health Act omits to give you the very necessary powers of providing for free vaccinations when Small-pox breaks out, I myself vaccinated families in the immediate areas free of charge at my own cost, or else by my advice secured they were vaccinated by the private practitioners. Personally I hold the legislature should sanction and provide for compulsory vaccination in what might be defined as infected areas of all unvaccinated persons of any age, and compulsory re-vaccination of all persons whose primary vaccination was of more than 5 years date.

I should state that bills were distributed to every household strongly urging general vaccination and revaccination as soon as the epidemic in Bradford developed, and weeks before any cases broke out in your district. The first case of small-pox occurred in April, and cases kept cropping up at longer or shorter intervals till the end of the year. 18 cases in all occurred, of which 13 were in the South Ward, which adjoins the borough of Bradford, 3 in the Central Ward, and 2 in the North Ward. Of the 18 cases of small-pox two were fatal, one from the South Ward and one from the North Ward. Except two cases all were promptly removed to the Conjoint Hospital at Calverley, and these two were removed when in the convalescent stage. In the earlier instances the families were also removed to the Conjoint Hospital and quarantined there. But later on the hospital authorities refused to provide quarantine accommodation, and the families were quarantined at home. Legal provision for so doing should be made by the legislature, as also in the case of working class households, maintaining such families during the quarantine period. At present such provision, however much needed, is illegal, and authorities like your own run risk of being surcharged for such necessary expense, a condition of things clearly contrary to the public interest. It should also be made clear by the legislature that removal to infectious hospitals of patients suffering from dangerous infectious disorder should be solely at the public cost, when such is in and for the public interest. It should be stated that in the instances when there was not prompt removal of the small-pox cases to the Calverley Infectious Hospital, Bills were posted at the houses declaring them to be temporary hospitals for the reception of small-pox patients, and cautioning

the public accordingly. Seeing that a yellow flag has to be hoisted by ships in cases of cholera, &c., which are moving habitations, it is obviously a duty to notify in some public way that fixed habitations are sources of infection when dangerous epidemic disease obtains in them for indefinite periods and without absolute isolation. The other measures adopted beyond those recorded were vaccination and revaccination of all members of the household and of those who had been in contact with the patient or family; disinfection of all possibly infected articles at the hospital high pressure steam disinfector, fumigation of the dwelling by sulphur, cleaning and repapering the rooms, and quarantining of the house and family for the proper periods.

In the Autumn of the year when the Conjoint Hospital would no longer quarantine cases, it was suggested that the Board should put up an iron quarantine establishment, but when the matter came to be discussed by you, at the close of the year I stated that in my judgment the worst of the thing was over and so nothing more was done. My judgment turned out to be correct, as only one case occurred after that, and for the last 4 months we have been entirely free. Having regard to our high rates and heavy financial burdens, this was fortunate, and in connection with this, one may point out how economical and advantageous the compulsory Notification of Disease and the sanitary powers and provisions which we enjoy has been. In 1871 and 1872 when no Medical Officer of Health obtained and no Notification was in force, Small-Pox caused several deaths and there were very many cases throughout the district. With a population half as much more than what it was then, but for our advantages of sanitary control there would undoubtedly have been an extensive epidemic in 1893, for people are often most careless in these matters, and the direct and indirect cost to the community would have been very considerable. Since my appointment in 1873, Small-Pox, though it broke out in that and the following year in 3 or 4 instances and again in 1893 has never extended beyond the dwelling in which it first developed, so that in each instance the infection had been stamped out effectively. It should be pointed out how valuable and essential in dealing with Small-pox was the Conjoint Infectious Hospital and particularly the special Small-Pox Blocks which on the advice of the 5 Medical Officers had been provided in 1892. Ratepayers grumble at the direct cost which such provision entails, yet, but for such expenditure there would humanly speaking, have been a large amount of loathsome and fatal epidemic disease at a frightful cost to the inhabitants and to yourselves. The Idle Health Officer reports that further outbreaks of Small-Pox developed in his district from a case which could not be removed when the Conjoint Hospital was closed and also from jerry built houses, allowing apparently the contagion to spread through the walls. Just imagine then what a state of affairs we should have had in the South Ward where the bulk of the outbreaks occurred and where there are so many jerry built back to back houses, if we had had no Isolation Hospital. Before leaving Small-Pox I must touch on one very important point, viz., the powers and duties of the Medical Officer of Health and of the Board. In a recent communication to you the Local Government Board has pronounced against the regular visitation by the Health Officer of the cases notified. Well, a case of Small-Pox was notified to me by a medical practitioner. On visiting it I concluded the case was Chicken-Pox and not Small-Pox, and accordingly did not send the case to the Small-Pox Hospital, although I took care to avoid stating I differed in

opinion from the private practitioner, and as it was a case of Infectious Disease, so spoke of it and so advised. Now had the patient—a girl—been sent to the Hospital straight away on the private practitioner's notification it would almost certainly have become infected, which would have endangered life, and appearance, caused much suffering and anxiety, and put you to definite expense, all of which would have been quite unnecessary and avoidable. Then who would have been legally liable, the private practitioner, who notified, or you, the authority, who are responsible for the removal of such cases? It seems to me these points ought to be definitely cleared up. And about the injury to the patient? Personally, I hold strongly that professional etiquette must always be subordinate to the common weal, and it seems to me that the inhabitants have a distinct right to demand or expect that the Health officer who is their paid servant shall be personally responsible for the diagnosis of dangerous infectious diseases, such as Small Pox, with all its attendant consequences. If it be required or expected of the Health Officer to do this he forms a safeguard to some extent alike to the patient, the family, the public and the authority. And all that is required to avoid difficulty or friction, as between the Health Officer and the private practitioner, is, that both shall be gentlemen in the true and full sense. But supposing that the private practitioner's prestige should be in any degree damaged? What after all is that if such be unavoidable in the nature of the case as compared with the damage done to the patient, who, when not suffering from dangerous infectious disease, is compulsorily removed to an Infectious Hospital there to become infected, and be probably, in the case of Small Pox, disfigured for life, run the risk of death, and at great cost to the sanitary authority and anxiety to the friends? But after the letter that has been received from the central authority, and its publication in the local press, it is obviously no longer incumbent on or possible for me to either give the support which the confirmation by me of the private practitioner's diagnosis ensures, or the protection to the patient and yourselves in relation to dangerous infectious disease as representing the public, which a difference of opinion on my part as to the real nature of disease would tend to secure. It must be added that with the exception of one fatal case in an unvaccinated patient, and one unvaccinated child who recovered, all the Small-Pox patients were in persons vaccinated in infancy, but who had not been re-vaccinated. I regret to state that I ascertained many children in Eccleshill of late years had only been vaccinated with one vesicle, instead of 3 or even 4, which are necessary to secure real protective influence. The one other fatal case of Small-Pox was in a woman whose husband first had Small-Pox and although I urged the wife to be promptly re-vaccinated, she stated that owing to her being pregnant she was advised not to be vaccinated and in spite of my strong advice would not be re-vaccinated.

Chicken-Pox.—This has been slightly prevalent in the district as is often the case when Small-Pox is epidemic. In more than one instance there was doubt as to whether cases were Chicken-Pox or Small-Pox. This being so ought not Chicken-Pox to be compulsorily notifiable? I decidedly think so, and after all Chicken-Pox is not unfrequently, as has obtained in some of the recent cases, a really severe illness. Moreover it often is followed by marked constitutional debility, and as it is most highly infectious and puts parents to expense as well as children to suffering, I must advise you to add this to your compulsory notification list. As you already pay for medical notification this will not add to the cost of disease notification as it will be only on the householder who is not paid, that additional responsibility will

fall. Further, please consider that Chicken-Pox is the only epidemic infectious disease amongst children that you have not by resolution included under the Notification Act, and as long as there is an exception, parents who are careless can always plead they were not sure that a given disease was not the excepted one. Whereas, add Chicken-Pox, and there is no loophole, since it will be sufficient that any and all children's infectious febrile diseases will then be compulsorily notifiable. I have felt that it was hopeless to attempt putting pressure on parents as to Whooping Cough, Measles, &c., until this was done.

Measles.—On one occasion in the year I received Notification from a medical practitioner of a case of Measles in a backyard of a populous part of the district. I went at once to the case, because the district was free from Measles at that time. I found the rash had only that day begun to develop and at once isolated the patient and the family. No other case in the neighbourhood arose, which suggests, I think, that Measles can be checked, which I also showed not unfrequently fifteen to twenty years ago. Now in 1892 an Eccleshill woman went to Bradford one day with her child to visit a friend. In getting *into* the house she found they had Measles in the family. Having got in she did not like to leave; her child in due course developed the disease at home in Eccleshill, and as I did not happen to get it notified no preventive measures were adopted, neighbouring children took it and conveyed the contagion to one of our schools, which spread it far and wide. If my idea were carried out, viz., of its being required where ever epidemic infectious disease obtains in a household that indication of such should obtain, which would prevent friends or others susceptible to the disease *unwittingly* going into such dwellings, especially where there is not more or less perfect isolation of the patient, this kind of thing would not so constantly happen. And I hold to-day, as I have done throughout the twenty years of my experience in this work, that in the present state of our knowledge, public bodies and the public themselves should, as well as all individuals concerned, use all and sundry measures at all reasonably possible, that can effectually or partially protect human life, particularly in its tender years, from infectious and preventible disease, be that severe or mild.

Whooping Cough—I regard this as one of the most distressing infectious diseases that children can be attacked with. And often it permanently impairs a child's constitution. I am glad that you have, during the year 1893, added this to the list of compulsory notifiable diseases, along with Measles, German Measles and Mumps. Whooping Cough was prevalent in the latter part of the year, especially in the North Ward.

German Measles and Mumps only occurred quite sporadically in 1893. I advise you to maintain your notification of these Diseases at least for the present though in Measles especially, as well as in Whooping Cough, it is very difficult to act up to the standard we aim at, and it is not impossible we may have to recede from our position after fair experience.

Scarlet Fever.—This disease was frightfully epidemic in Bradford in 1893, and largely due to milk contamination. It was prevalent in the North Ward in the early part of the year, and cases cropped up from time to time in your district in the other Wards. 30 cases were removed to the Calverley Conjoint Fever Hospital and in the following Ward proportions:—

North Ward, 17 cases.

Central Ward, 9 cases.

South Ward, 4 cases.

In some instances where the cases were kept at home Bills similar to those referred to under Small-Pox were put up on the dwellings with Scarlet Fever substituted for Small-Pox. This was done in outbreaks where the conditions made it desirable some such notice should obtain. I am bound to state that of late years it has been increasingly difficult to trace the line of contagion, and there are probably more subtle ways by which contagion is spread than we yet can grasp or even suspect. In connection with the Conjoint Hospital I shall have to refer to one interesting point bearing on this. I may state disinfection of clothes, &c., takes place at the Conjoint Hospital Disinfector and the home fumigation and disinfecting is under the direction of your Nuisance Inspector. No recurrence of Infectious Disease has so far occurred after the foregoing. As regards the North Ward several cases were due to infection at a Sunday School by means of a scholar who attended while peeling from scarlet fever and whose parents seemed to have no suspicion that the "skin peeling" had to do with infectious disease. The Legislature gives us no control over Sunday Schools but piety does not necessarily secure immunity from infectious disease.

Enteric Fever.—Three outbreaks of this disease obtained in 1893, and two in leading families. The first was in January and in a woman residing in the South Ward who had quite recently been confined in a House with defective drainage in the basement; which was afterwards remedied. The second outbreak was in the Autumn and in the household in the Central Ward in which two years ago Enteric Fever occurred, and on which I reported in my Annual Report for 1892. The correctness of the judgment formed by me at the time, which was opposed to that formed by others, was on this occasion corroborated, since the cases, four in number, were in members of the family who had not been away for weeks or months, and so my view that the first outbreak was due to causes within the dwelling and not to infection far away was I think supported though of course it is possible that this second outbreak was the outcome of the first. I, however criticised the drainage and sanitary arrangements at the time, and advised the whole being overhauled by a sanitary engineer. This was not done then, but since the second outbreak such course has been adopted. I regret that a disconnecting chamber, as I advised, was not put in between the house drain and the road sewer, which has an extremely rapid and steep fall from the dwelling. Here as in nearly all the water closets of Eccleshill, the insanitary and absurd arrangement of a syphon trap at the bottom of the soil pipe obtained so that ventilation of the soil pipe and of the drain was impossible. Further a lavatory basin in the bed dressing room went down untrapped into the cellar and thence out into a gulley practically covered in. These defects have been remedied. Untrapped wastes are the rule in Eccleshill, and are dangerous and insanitary. Such waste pipes are germ conservatories and in addition to being properly syphoned just under the basin the waste pipe should have a back air pipe so as to secure a constant current of air through the waste pipe from bottom to top but both openings being outside the building. As an instance of grossly insanitary arrangements it may be stated that the drains from this House went more or less directly into the ornamental pond in front of another gentleman's House who for many years was an active member of your Board. Since the second outbreak this has been remedied by connecting the drain in question with the main sewer. Now in the third instance which was in the North Ward, two children sleeping in a bedroom with an untrapped bath waste pipe developed

Enteric Fever, and the waste pipe, by scamped workmanship, discharged below the surface of the ground, partly over an ungullied drain pipe and partly into the soil. The soil was saturated with sewage and the drain owing to being badly laid was blocked. No w.c. drain went into this, but the ~~un~~^utrapped bath waste was the sanitary defect that in my opinion was sufficient to account for the outbreaks. Two years ago I came across a similar case of the outbreak of Enteric Fever in children where the only sanitary defect bearing on the case was an untrapped sink waste pipe discharging into a blocked and unventilated drain. These cases throw light on the second and third outbreak and as bearing on the etiology of Enteric Fever, I may mention a case that came under my notice fifteen years ago, where in a detached and new house whose ^{sink} untrapped drainage went into a cesspool, and where the members of the family had never from the first occupation visited anywhere or had any visitors, a serious outbreak of Enteric Fever occurred consequent on the emptying of the cesspool, when, owing to a heavy fall of snow all the grates in the yard were covered over, and the effluvia of the cesspool passed direct into the kitchen. Here certainly as far as one could judge a specific germ disease developed in connection with ordinary effete organic waste matter and apart from any pre-existing case having connection with such defective sewage arrangements. The milk and water supplies were above suspicion. I may say that, in the third instance, reported in 1893, the w.c. and other drains were found to be defective in arrangement, the waste pipes, though syphoned, went direct into covered drains without disconnection, and no proper flushing arrangements nor disconnecting chamber obtained. The house and its drainage were absolutely detached from all other private or public drainage, and it is to be borne in mind that in a very large household the only two cases of Enteric Fever that arose were the children sleeping in the only bedroom which had an untrapped bath waste pipe going into decomposing sewage soaking in the adjacent soil. The defects alluded to have been remedied in the main, a disconnecting chamber and an automatic flushing tank have been put in and proper ventilation of the house drain, with trapping of all waste pipes, with their discharge either into disconnected hopper heads or over trapped gullies, has been provided. As an instance of the kind of work done in these matters, I found one bath waste pipe going direct into an ordinary four inch bend, and between that and the next drain pipe simply a flower pot was put in with the bottom knocked out. Between these, rats found their way under the drawing room floor. I may state here that on my advice proper air tight covered receptacles were obtained in 1893 for Typhoid excreta in cottage property. When I was first appointed Medical Officer of Health in 1873, Enteric Fever was almost endemic and many cases occurred every Summer and Autumn. On this ground mainly I urged the early carrying out of a sewerage system, and since it was completed some 15 years ago enteric fever has occurred only sporadically. Contrast this with your neighbours Idle where in 1893 some 50 cases occurred.

No cases of Diphtheria or Membranous Croup obtained during 1893.

Diarrhoeal Disease, notwithstanding the warm summer, did not extensively prevail, though a severe outbreak of Choleraic Diarrhoea in Chapel Street formed the basis of a special report from me, a copy of which, according to regulations, was sent to the Local Government Board and to the County Council, and happily impressed you so much that the reproach of not being provided with efficient sanitary inspection as to which I have reported year after year was at once remedied by the decision to

appoint a Nuisance Inspector under the Local Government Board, and was carried into effect at the close of 1893. This alone gives a red letter character to your sanitary history of 1893, since in this respect Eccleshill has been sadly behind and negligent. And with the remedying of this defect I am confident that the death-rate, other things being equal, will be still further lowered or at least kept from re-ascending, as it had done before my return to the district, and I am certain that the general health of the community will be effectually promoted by this important and highly satisfactory provision. It is a long lane that has no end, and I may be permitted to rejoice that with this will terminate the annual paragraphs, which since 1874, have formed so essential a part of my annual reports. And in connection with this thought I must not forget to say that the corresponding paragraphs as to revision of your Bye-Laws will also no longer be required, since in December, 1892, you adopted the Model Bye-laws of the Local Government Board, although they are still not actually in force, owing to the length of time which the pressure of public work necessarily takes up before the Department can deal with such matter. You have by this step discharged your responsibility in being up to date. However in the course of the current year they will become operative, and these two matters of Inspector of Nuisances and Bye-Laws fairly up to date having been secured, we may look for steady progress towards good all round sanitation in the district. The Zymotic death-rate for the year 1893 was 1·9, which under the circumstances of severe epidemics of Small-Pox and Scarlet Fever in our big neighbour's district, is most satisfactory.

Influenza kept cropping up in odd households, throughout the year, and caused 3 deaths. More often children were attacked than in the great epidemics of 2 years ago. Notification here is evidently out of question at any rate in our present knowledge of the matter.

Tubercular Diseases, including Phthisis.—The waste of human life that annually goes on in civilised communities from these diseases is something awful to contemplate, especially when it must be regarded as essentially preventible. During 1893, 11 deaths from Phthisis (equal to a consumption death rate of 1·3) were registered which is considerably below the average annual mortality in your district from that disease, and may be accounted for as partly owing to the very dry and warm summer and also partly no doubt due to the fact that many phthisical patients and those likely to develop it were swept off in the influenza epidemic. One would like to hope that the teaching which one has made so strong a point in one's work as to ventilation of bedrooms is having some beneficial influence and that more and more will such be the case. We all of us, alike as good citizens and good Christians, ought to set ourselves in all earnestness to wage unending war against all the conditions of human and indeed animal life which are factors in producing from this cause alone from one-fourth to one-sixth of our annual mortality. In my annual report for 1891 I went into this matter at length and drew up regulations which I suggested as prophylactic and restrictive in relation to Tubercular Diseases. Every phthisical patient ought to be required to disinfect or destroy all pulmonary expectoration forthwith, and at death the bed room that has been occupied by such patient ought to be dealt with as if it had been occupied by a case of scarlet fever. I propose to supply printed instructions for phthisical patients as to dealing with infected expectoration and discharges, and to see that as far as possible in fatal cases proper steps are taken to

secure disinfection of the rooms occupied more or less entirely by such patients. It has been calculated that some 20,000,000 of specific germs are expectorated daily on an average by a consumptive patient and when such expectoration dries is aerially distributed as an invisible dust of a deadly potentiality. The Germans have a proverb that "every man is a bit of a consumptive after all" since post mortem examinations reveal in so large a proportion of deaths from other diseases evidence of Tubercular infection.

Cancer caused four deaths in your district in 1893 and undoubtedly this terrible disease is increasing in frequency amongst us. Such has been the case during the last fifteen years, and is associated with a process going on in the country generally, and connected, I believe, largely with the competitive and other conditions causing strain and worry which are characteristic of our modern civilisation. But in fact we know very little if anything definite on the matter, though with so many scientists working on the subject we may hope to be better informed ere long.

Infantile Mortality is lessening markedly as compared with previous years, and here I certainly think that the educational effect of one's efforts in hygienic instruction is telling favourably and decidedly. The Infantile Death-Rate which is an important index of the health of a community has never been so low as in 1893, and was 10 per cent. less in proportion to the total deaths than the decennial average from 1874 to 1883. As the tables show your Infantile deaths per thousand Births were only half of what obtained in Farsley and one third less than in the other districts as well as equally below the infantile death rate of the whole country. I congratulate you on this more than on any other one point and I am delighted you are not "*faiseurs des anges*" to the extent you used to be in Eccleshill.

Notification of Infectious Diseases.—I have before been able to congratulate you on not only being the first town in the Country to adopt systematic Notification of Infectious Disease as was done in 1875, but in also being still ahead of any town in the United Kingdom in this respect. Your Nuisance Inspector, as recently appointed, visits all houses where Epidemic Infectious Disease is notified (and in Eccleshill *all* such are notified by the doctors) and gives the necessary information and instructions as to limitation of these germ diseases, and I believe that in no town in the country are the inhabitants generally and the working classes in particular so well informed on these matters as in your district. Printed handbills containing Dr. Whitelegge's paragraphs on the Prevention of Infectious Diseases in Chapter XIII of his Hygiene and Public Health under the heads of Isolation, Arrangement of the Sickroom, Disinfection during and after the illness, with the Quarantine and School regulations in the table drawn up by the Association of medical officers of schools are supplied as considered necessary. Framed copies of these are also put up in the Board Schools and I may say that with us, on my advice the School Attendance Officer reports to me all cases of Infectious Disease, such as Measles, Chicken Pox, Mumps and Whooping Cough, that he comes across and not under medical attendance. He is paid sixpence for each case notified, and his notifications are of great value. The Nuisance Inspector now visits *all* such cases, and in doubtful cases I go too. As regards Householder's Notification that is almost *nil*, but before pronouncing it an absolute failure we must provide the householders with notification cards (just as the Act compels us to supply the doctors) and give more chance of education in this respect.

Nuisances, Scavenging and Sewerage.—I had purposed drawing up a detailed report on Nuisances at the close of 1893, but seeing that you yourselves became satisfied that Nuisances very largely went on from year to year without being dealt with and upon this appointed from January 1st, 1894, a Nuisance Inspector under the Local Government Board, it seems to me on reflection that at least a year ought to be allowed to go over before I take up your time with details in order that the present Inspector may have reasonable time and opportunity to show us how far they will be effectually dealt with by him. The Scavenging of your District is carried out by you, and is under the control of your Nuisance Inspector. The objectionable custom of emptying ashpits in the day time still goes on, and I think the slight additional cost of night removal should not bar the adoption of such method, as being more in harmony with our civilised ideas.

In connection with scavenging I must express my regret that you did not see your way to fall in with my suggestion that the regular emptying of house drain gullies should be undertaken by you. These are cesspits and often dangerous ones too. As you empty larger cesspits why not the smaller ones, which when blocked and foul, are a danger to public health? The additional cost would be trifling and the benefit great. In Pudsey the Board of Health there has adopted this plan and what Pudsey can do of a progressive character surely Eccleshill can also do. As regards the Sewage of the district the sewers of the South and Central Wards go to the Sewerage Farm and are there dealt with though not at all satisfactorily as the clay soil is clogged and not well adapted for this purpose and consequently the effluent into the beck is not so pure as it should be. I would advise what I suggested in the first instance, viz., settling tanks at the outfall sewer.—The Sewage of the North Ward goes into tanks to which the Alumina Ferric method is applied. I append a table shewing the result which again is not as good as it ought to be. The specially prepared Sulphate of Iron might be tried to see how that would work in comparison with the Alumina-Ferric and also other precipitation methods tested until you got one that was fairly satisfactory. Referring to the Sewage farm I must point out that I vigorously protested at the time against the scheduling of more than 20 acres of land, as in my judgment this taking of over 100 acres was an unwise procedure, the land not being at all well adapted for irrigations. My judgment has here also proved correct, and during 1893 you yourselves regarding the Sewage Farm as a “White Elephant” felt anxious to get rid of its burden if possible. However as 15 out of the 30 years for which money was borrowed have elapsed, I should advise “sticking to the land” if possible as it will come in yet for many valuable municipal purposes.

As regards the house drains these are in a large number of instances unsatisfactory, and something like 50 per cent of the sink wastes are unsyphoned. The sink wastes should deliver at the side and not over the gulley basin, as well as be provided with a syphon screw tap with back air pipe close to the sink or lavatory. I have found that as they deliver at present, viz., over the gulley dish, the Sewage runs over the basin into the ground about, causing a nuisance. I hope this year will see this largely remedied and also that properties not connected with the Main sewers and within the requisite distance will be looked after. The ventilation of public sewers requires to be improved by the erection of special shafts such as I advised in 1878. We are getting an increasing number of disconnecting chambers put in to private houses and separate blocks of property, and owing to these it is all the more important that special shafts to ventilate the main sewers should

be adopted. I attach great importance to the principle of disconnecting chambers, which should be put into every detached house drainage and to the drainage from separate blocks of dwelling houses. And the more detached and disconnected private drainage can be made the better, so that all dwelling houses are made independent of the conditions of the main sewers and of other private house drains. As regards the large bulk of the dwellings in Eccleshill, they have the common privy and ashpit, and as a rule many families join in one privy and ashpit. The privies are not lighted at all nor is there sufficient ventilation. The ashpits are lime walled and covered in and have no ventilating shafts. This is all wrong. Each house should have its own privy and ashpit. The privy should be well lighted, not the dingy hole that is called a privy at present, and I personally advocate for Eccleshill some modification of the pail system. Just reflect what you do. Fæcal and waste matters are accumulated for weeks and sometimes months in the privy ashpit, then the whole contents are shovelled out into the street or yard giving off foul offensive effluvia and saturating often the ground on which the midden ashpit contents are thrown, and finally shovelled up again into an open cart. Surely all this is not true scavenging. If proper pails were put under the privy seats, with provision for air tight covers, and these removed at least weekly or fortnightly in the Summer and monthly in the Winter and their contents taken to your sewage farm, what an improvement in every respect it would be. Then with covered receptacles for the household waste dealt with in a similar manner all nuisance would be avoided. It is of course assumed that the pails and receptacles will be carted through the streets with air-tight covers on and after being emptied at the farm be thoroughly deodorised and cleansed before being used again. Each privy should have a window just as if it were a w.c. and the ashpit should have not only an air inlet but an air upcast ventilating shaft as of a chimney or a 9 inch ~~ventilator~~ pipe ventilator so as to constantly ventilate the ashpit directly upwards and above the ordinary breathing level. I urge you seriously to consider all this and my suggestions there anent.

Cow Sheds.—During the year 1893 at least two old insanitary cow sheds were replaced by new and sanitary ones. But the bulk of the cow sheds are most unsatisfactory and require remodelling. Further the air space per cow required which at present is 500 cubic feet should be increased to 800 or even 1000. A pure and healthy milk supply is a prime sanitary essential especially for our *infant and child* population, and for this healthy cows must obtain, which again require well lighted and well ventilated as well as properly constructed mistals. In this respect Eccleshill requires revolutionising. The stables too are mostly defective. In some instances there is absolutely neither light nor ventilation. And the manure should not be allowed to accumulate around the stable and mistals as is the case at present for six or even more months. I would advise your adopting the Bradford Regulations on all the foregoing points. Mistals and stables should never have openings on to manure heaps and their drains should have aerial disconnection.

Slaughter Houses.—There are no really up to date sanitary slaughter houses in Eccleshill. I should advise the erection of a public abattoir on your farm, and the getting rid of all your old shanties which do duty in this respect at present. I may here observe that in some instances the offal is allowed to accumulate along with manure and then when put on the land gives off a horrible stink. I reported on this fifteen years ago, and advised a

bye-law requiring deodorisation of such matter before being used, or else more frequent removal and in an urban district I do not think stinking manure should be put on land at all that abuts on thoroughfares and dwellings.

Public House Urinals.—In many instances these abut on the public causeway and are most offensive especially in hot weather. They all ought to be either removed or else reconstructed so as to be provided with automatic flushing, and deodorising, cleansing and disinfecting regularly carried out.

Water Supply.—The plumbo-solvency of the water thanks to the public spirit of the Bradford Corporation has been remedied, but often the water is dirty and contaminated with black solid matter to a large extent due to deposits from the mains. There should be somewhat more frequent flushing of dead ends and valves than at present obtains. The water itself as supplied by the Corporation, is of a most excellent quality, and though the hardness has been increased by from 1 to 2 degrees, yet this being altogether not more than 3 to 4 degrees, is in my opinion apart from the question of plumbo-solvency, a distinct advantage, and has not been found to be uneconomical in either the domestic or manufacturing aspect. You will remember I was charged with unnecessarily causing water to be wasted by my outcry on lead poisoning, and also practically raising the rates one penny in the £ since the profits on water are applied to the General District Fund. As a fact by getting people to go in wholesale for filters my action led to a saving of water, and the following figures are interesting :—Amount transferred from Water Account to General District Fund :—

						£	s.	d.
1891	...	...	...	...	...	327	13	6½
1892	...	...	...	...	...	390	17	4
1893	...	...	...	...	...	431	18	5½

The average daily consumption of water per head which ought to be at least 20 to 25 gallons is only about 12 gallons. You ought to encourage freer use of water, and this you would do by lowering the price, in which way all householders would benefit, whereas the present system of profit making discourages free use, and the profits, by relieving the district fund, benefit not consumers of water but ratepayers, especially those on whom the district rate mainly falls. As regards lead service pipes although on my advice you have altered your water regulations so as no longer to compel lead service it is still the universal rule in new property. You ought certainly either to prohibit ordinary lead pipes or else prohibit long lengths of lead services.

Paving of Private Streets.—I am extremely glad to report that much progress was made during the year in this respect especially in the South ward. The paving and flagging of the streets is a very essential sanitary procedure as with so extensively clayey subsoil as we have, by carrying the rainfall off into the sewer, the soil and air are kept drier and the temperature of the air not lowered as it would be by more continuous evaporation. Moreover organic waste matters are removed more readily and regularly. I advised on these grounds in 1883 that these street improvements should be carried out. The rain fall pipes however are very defective throughout the district.

River Aire.—One must not omit to state that owing to the County Council's initiative a Conservancy Board for the Aire Valley was formed in 1893, which one hopes will sometime before the Creek Kalends remove the Stygian state of the river as it flows along your lower boundary.

Offensive Trades.—During the year my attention was called to a bone-boiling establishment in the North Ward. On visiting the place I found it in a most offensive and disgusting condition, and legal proceedings having been threatened the man abandoned the place altogether. Another bone-boiling establishment is one for which a former Board is responsible, since when the old establishment had to be removed, to give place to a new mill proposed to be erected, the then Board, contrary to my advice sanctioned its erection in another part of the township. I have known wherries conveying material along the highway to leave behind a most horribly nauseating stink, all along the route long after the vehicle had gone out of sight, and I have met the Great Northern Railway waggons conveying skins, &c., from Eccleshill station when they were most offensive. Your nuisance Inspector should be instructed to keep a sharp look out on the premises and on the company. Complaints have been made as to the foul smells from the Old Mill Dam and wool scouring tanks, and undoubtedly these are at times offensive. I would suggest the seak tanks should be put further back from the Victoria Road or that they should be covered in and provided with a tall ventilating shaft of adequate size and construction. The dam should be frequently cleared out and the tanks should not be emptied into the sewers along with warm effluent.

Habitations Unfit For Occupation.—No procedures under this head have been taken in 1893, but a House to House Inspection as advised under the Cholera Section will probably lead to such.

Baths and Wash Houses Acts.—I strongly advise the provision of Public Baths. Apart from my views as Health Officer, having been at the head of a Hydro as Medical Superintendent, I can assure you my experience there makes me long to see every town provided with properly fitted up and adequate Bath Establishments. For in Hydropathy the procedures are essentially purely hygienic and physiological, since the system, as Professor Peter puts it, "pharmaceutically is at the end of a bath properly administered, what it was before, but vitally is in every way better."

Inspection of the District.—I have made regular inspections of the District and I find these stimulate Householders. I have from time to time brought matters coming under my observation in this way to your notice which have been ordered to be attended to and had a spasmodic attention. But soon matters drifted into the old rut, though now that you have a Nuisance Inspector whose whole time is devoted to the office, one must look for more steady attention to and removal of insanitary conditions which regular inspections reveal. One suggestion I have to make is that in every house a Local Board Box should be provided containing cards for notifying to the Nuisance Inspector or the Health Officer cases of Infectious Disease or of full Ashpits, and any Nuisances or evils of which complaint ought to be made. And these and the Rate Delivery Notes might have printed on them the addresses of the various Sanitary Officers.

Bye Laws.—I have referred elsewhere to the adoption of the New Model Bye Laws as also to the defect in them as regards the requiring of windows in privies. The improved ventilation of bedrooms, as also of living rooms might properly be dealt with by requiring 1st. that no plan should be passed which did not provide for all rooms that could possibly be used as bed or living rooms, a fire-place and chimney breast mica flap ventilator, and an external opening by air brick or special air inlet. And no small room or closet ought to be allowed to be made upstairs which had not provision for both adequate air inlets and outlets. These small rooms and closets, as also badly ventilated bedrooms, are large factors in the development of both acute and chronic Lung Disease, and no room scarcely, in my experience is too small to be used regularly or occasionally as a bedroom. Above all never pass a plan for any habitable room that cannot be well lighted and ventilated, since light as well as fresh air is strongly antagonistic to the conditions out of which Consumption develops. And in my opinion *no* dwelling house ought to be allowed to be erected which has not a bath room and w.c. provided for it. I should like to point out that in cottage property the stairs are too steep and narrow and both upstairs and cellarstairs are often quite unlighted thereby favouring accidents.

Your Drain Regulations drawn up in 1878 have not been carried out as regards syphoning, &c. They would do with revision, since they are not up to date in some important points, as for example, in requiring *clay* joints, and I would suggest you adopt those lately drawn up by the Idle Local Board with the model plans as issued along with them. Further, all gullies should be put in by you ~~yourself~~ and be *self* cleansing. Samples of these and of other modern and reliable sanitary appliances should be kept at your office.

Calverley Conjoint Hospital for Infectious Diseases.—This Hospital of which you are one of the constituent Authorities, was opened in November, 1891. with 18 beds, for a population in the combined Townships of Eccleshill, Calverley, Idle, Farsley and Pudsey, of 36,343, covering an area of 7,236 acres. The Medical Officers of the Hospital, up to December 31st, 1893, were the Medical Officers of Health for the respective 5 Townships named above, who, in rotation acted for 2 months each as the Visiting Medical Officers. At first there was no provision for Small-Pox, but on the advice of the Medical Officers, a special Building of wood, with 6 beds for Small-Pox cases, was put in the Summer of 1892, and the 1st Small-Pox case was admitted in February, 1893. Owing to the crowded state of the Small-Pox Patients in May, 1893, in which month Small Pox became epidemic in the 5 Districts, another building of Iron construction with 10 additional beds was erected. Tables have been given showing the admission and deaths from your District, as also from the other Townships in 1893. In May, 1893, when I was myself on duty, Small-Pox developed in one of the Scarlet Fever Patients who was on the side next to the Small-Pox block, at that time quite crowded with Patients. The patient's bed was close to a window on the prevailing wind ~~ward~~ side of the Small-Pox block, and not more than 17 yards distant. In my judgment there was strong presumptive evidence of aerial convection, though it is fair to state that the other Medical Officers considered it was more probable the contagion had been conveyed in other ways. And later on in the year, after I had ceased to be on duty, convalescent fever patients from Idle who had been sent home, developed Small-Pox within periods that pointed distinctly to infection at the Hospital at the time of being sent home. The bath and drainage arrangements

were most defective and the same conveyance was used for all cases, although it was understood it was disinfected thoroughly after each removal. The Medical Staff had advised the Hospital Board on these points, but, implicit reliance had been placed on the Curator and Matron by the Board as to all these matters being efficiently dealt with. For a time the Hospital was closed to all except Small-Pox cases, but on September 14th I was notified by the Clerk of the Hospital Board that from October 1st, the Hospital would no longer be open for the reception of Small-Pox cases. I at once drew your attention to the doubtfulness of this step, as in my judgment the condition of Small-Pox in epidemic form in Bradford made it likely, further cases would develop in your District and the Conjoint Hospital was the only isolation Hospital at our disposal. In a week or two Small-Pox broke out in Idle and also in Eccleshill, and the cases had to be kept at home till the Conjoint Hospital was re-opened for Small-Pox cases, which, after consultation by the Hospital Board, with the County Health Officer and the Medical Officers, was decided upon, subject to the erection of a hoarding, 8ft high, round the Small-Pox Wards, the use of a separate ambulance for Small-Pox cases and the adoption of stringent regulations drawn up by the Visiting Medical Officers who formulated the regulations now in force, and approved of by Dr. Whitelegge and the Hospital Board. These regulations are appended. The Hospital was re-opened for all cases on November 1st, 1893. There can be no question that the Hospital has been a great advantage to the constituent Townships, and although there has been grumbling by the economists as to its cost, the Hospital has saved itself during 1893 over again in my judgment. Owing to our increased density of population, we should be in a poor plight if we had to do without it. Personally, however, I am a strong believer in the aerial convection of Small-Pox, and I would prefer that these Patients should be isolated on a separate area and under separate administrations and at least $\frac{1}{4}$ to $\frac{1}{2}$ a mile from inhabited dwellings, especially if many cases are concentrated on one area. The cost of the Hospital in 1893 was £405, which includes cost of patients' maintenance and treatment and the proportion of payment for capital and working account falling on Eccleshill. The average cost per patient was £5 18s. 7½d.

I may here add that the Hospital is near your Boundary on the South East and that its drainage goes into the Fagley Beck, which forms the boundary between your district and Calverley, and which opens into the River Aire about a mile below. It has happened that 2 years in succession Scarlet Fever has broken out in a farm at Fagley, which gets water from this Fagley Beck about $\frac{1}{4}$ of a mile below the Hospital and exactly opposite where the Hospital effluent goes in. The first outbreak was in a few weeks after the Hospital was opened and at which time the Hospital Sewage was untreated. I was at a loss at the time to account for the outbreak, and did not learn the foregoing facts till last year. As Health Officer for your District I had the Hospital effluent and the beck water analysed above and below the Hospital Sewer outfall and although the Hospital Sewage is treated by the Alumina Ferric precipitation method with partial irrigation as carried out by the engineer of the Bradford Sanitary Association, I was able to satisfy the Hospital Board that the processes were not at all satisfactory and at present the Hospital Board is endeavouring to improve matters. To my mind it is strongly suggested that the outbreaks of Scarlet Fever at Fagley were due to contamination of the Fagley beck by specific germs, and at the time of both outbreaks of scarlet fever referred to the hospital sewage was going into the beck untreated. I am also of opinion that you

ought to see that the Farm in question with the adjacent cottages are supplied with a satisfactory water supply, and I regret you have not seen your way to carry town's water to the property in question on the ground that the owners do not offer to contribute more than £25 to the expected outlay of £90. It is to be remembered that the Farm in question supplies milk largely in the South Ward and also in Bradford. It is fitting to say in connection with the Conjoint Hospital, that at my suggestion the 5 Medical Officers agreed to give in the Spring of 1893 a combined series of Lectures with lantern illustrations in the 5 combined Townships. The subjects as you know were Food, Air and ventilation, House construction and Drainage, Germ Diseases and Water supply. The lectures had crowded audiences in the largest public rooms that could be got, and besides being well appreciated were productive of great good in rousing interest in Sanitation and Hygiene, and informing our working classes on vital matters. I regard this kind of work as the most essential of the Health Officer's duties, and I look forward to another similar course in the ensuing Winter. I have had the pleasure of giving hygienic instruction to a class of young women on Sunday afternoons at the Congregational Sunday School, and also by the kind invitation of Mrs T. Mitchell, of Eccleshill Park, of addressing a large number of mothers in connection with the same body on Infant and Child Hygiene.

Before passing on I must say a word as to charges to Hospital patients. At first on my advice you decided very properly and wisely not to charge patients removed from home to Hospital in the public interest. Later on, however from financial considerations you preceded somewhat from this position and accounts were sent to patients with a request for payment. As a fact none such have been paid and I presume nothing further will be done. But I must most strongly advise you to abandon all idea of charging except where patients go entirely for their own convenience or who want special accommodation. Now supposing small-pox or scarlet fever patients had remained in all cases at home. It is almost certain serious extension of dangerous infectious disease would have ensued at proportionate public and private cost. No, it is a great financial gain for dangerous infectious cases in cottage property to be treated in your isolation Hospital. The doctors however lose seriously, but *you* will not object to that. I am glad to state that in 1893 it was arranged the medical staff should be represented on the Board. Had this been the case from the beginning, in my opinion much expense would have been saved as for example in securing proper drainage at the first.

Ward Mortality.—From the beginning of my appointment 20 years ago, I separated Eccleshill for the statistical purposes of my Annual Reports into 3 divisions, and in 1878 suggested in the Report for that year that the Town should be correspondingly divided into 3 Wards, which was carried out in 1890. Ten years ago, what are now called the Central and North Wards, had annually a much higher mortality than what is now called the South Ward, and especially as regards Phthisis or Consumption. Last year the tables were turned with a vengeance and you will see that the South Ward stands out unenviably as compared with the two other wards, both as regards the Birth and Death rates, whereas curiously the Phthisis death rate was in exact arithmetic ratio in all three Wards to the proportions of population in these three divisions. There are two considerations bearing on the higher mortality and lower Birth-rate in the South Ward to be taken into consideration :—

1st.—The Houses are newer, much more back to back and jerry built and the working class population is denser.

2nd.—Undercliffe suffered much more from Lead poisoning possibly due to the lead water pipes being newer, and it is said that the lead pipe now used is much purer and consequently much more readily acted on.

You will notice that the deaths from Diseases of the Brain and Spinal Cord and Infant Convulsive disorders were in larger proportion in the South Ward, and these, along with the fact that in this Ward there were three deaths from Influenza, whereas none from this cause in the other Wards make up the difference. The South Ward is the most elevated portion of the Township, with the more exposed and bleak north-easterly aspect.

Nevertheless the general death-rate for 1893, was, as you have learnt, low, not only as compared with your own former death rates, but especially as compared with the other four neighbouring Towns of the Calverley Conjoint Hospital area. The outlook based on the statistics of 1892 and 1893 is most encouraging, and it is to be hoped your being the premier township will stimulate your neighbours to “good works,” and also determine you to do everything that can not only maintain your premiership but secure a “healthy” rivalry with your neighbours in every sanitary respect.

Cholera.—The Public Health danger ahead so far as my judgment goes is a visitation of Cholera during the Summer or Autumn of 1894, and I am most anxious that in Eccleshill we should be thoroughly prepared to meet the possible introduction or development of Cholera germs. This is *the* test of our sanitation. For here most certainly the “wages of disobedience is death” there being evidence in relation to cholera more than in anything else of the frightful penalty in loss of life and in money which grows out of defective scavenging and consequent pollution of the air we breathe, the water we drink, the food we eat, associated with the absence of personal and public cleanliness, which latter are not merely next to, but a primary essential of true Goodliness. As you know fatal cases of choleraic diarrhoea did occur last summer, though happily not extensively. But you must not infer from the fewness of the cases that you are prepared to meet further outbreaks. Fortunately our water supply is in nature most excellent, though more frequent and thorough flushing of the dead ends and valves is required. Our chief danger lies in the insanitary condition of our cowsheds, mistals and stables, the large proportion of insanitary privy and midden ashpits, and defective ventilation of the public sewers. Our excreta arrangements are in many cases simply abominable, whether for lower animals or for humans. The effluvia from manure heaps, from privy ashpits, and from public house urinals on the main thoroughfares, poison and pollute the air in the more densely inhabited portions of the townships, and in some instances the midden ashpits adjoin the dwellings and their contents pollute the adjacent soil, so that the heat of the house fire draws the smell right into the dwellings. Under another head I have dealt with this matter but here I may sum up the practical work which should be at once taken in hand.

1.—The Nuisance Inspector should be called upon to visit forthwith and report on every slaughter house, cowshed, mistal, dairy, stable, pigstye or poultry house in the district, giving details as to lighting, ventilation, air and area space per head where animals are kept, the arrangements for dealing with solid and liquid excreta, and for systematic removal at short intervals of organic waste. It is most essential that manure should not be allowed

to accumulate as it does now for months, and further that instead of being deposited on the loose ground in irregular areas, proper concreted and cemented floor and impervious wall receptacles, with proper drainage should be provided and protected from rain fall.

2.—You ought at once to see that all midden ashpits are well ventilated, and order that weekly or at the longest fortnightly removal of their contents should take place throughout the district in Summer time. The ventilation of the ashpits should be by currents of air from as near the surface of their contents as possible up through the roof of the ashpit when covered, and by a perpendicular chimney or shaft so as to avoid the effluvia coming out as they do now at the breathing level and in *horizontal* directions.

3.—You ought to consider and come to a conclusion as to a systematic revision of your existing privy arrangements throughout the district and as to regulations for the future. Your aim should be as quickly as possible to get every family provided with a separate convenience and dust bin and that both should be so constructed as that pollution of soil and air are obviated. Your ashpits as more recently constructed are too air tight. Not quarter nor half sufficient constant ventilation of them is possible, there being often only a single brick, or ^{at} most two, left out of the construction, all the rest of the erection being ^{at} linewalled and flagcovered. Curiously your revised model and proposed byelaws while requiring a window in an earth or water closet do not require one in a privy. This is simply ridiculous. What the well to do man's water closet requires as to light, decency and ventilation, so does ²poor ²the man's humbly constructed privy equally require.

4.—All unsyphoned sink, lavatory and bath wastes should be properly syphoned, disconnected and ventilated. All gullies, private and public, should be regularly cleansed and emptied by the Board's scavengers and the midden ashpits should be emptied between 10 p.m. and 6 a.m. and as far as possible contamination of the backyard and street areas should be prevented. To my thinking we want properly constructed non-absorbent moveable receptacles alike for privies and ashpits, and provided with air-tight covers.

5.—All Water Closets and Soil Drains should be inspected and reported on as to flushing, ventilation, and sound construction, with a view to secure sanitary conditions in connection with them all.

6.—A return should be made out of all Houses and Properties within the prescribed distance of your main sewers, which are not yet connected therewith, and notices served to make such connections.

7.—All Slaughter Houses and all places for keeping Cows, Horses, Pigs, Poultry, &c. should be registered and systematically inspected and reported thereon.

8.—All Factories and Workshops should be looked after as to their ventilation, and especially their drainage and privy arrangements.

9.—Public Notices should be issued as to cleanliness of dwellings, cellars, out-houses and private yards, and of especial attention thereto during hot weather. Householders should be advised to specially clean, flush, and disinfect regularly their sinks and house drains, and especial warning should be directed as to keeping milk and meat in cool and well ventilated larders, the common practice of keeping milk near the heads of house sinks being cautioned against and advising that during the hot months all milk, particularly when intended for children, should be well boiled as

soon as it comes into the house. Free ventilation and lighting of bed rooms by open windows and fireplaces should be directed to be secured as essential to health and as prophylactic against choleraic and diarrhoeal disease.

10.—Choleraic Diarrhoea should be made compulsorily notifiable.

11.—House to House Inspection should be carried out, especially in reference to unsyphoned wastes, dampness of walls, floors, or foundations, and unventilated bed rooms and defective privy accommodation or dirtiness of premises.

12.—All effluvium nuisances should be promptly dealt with, and the inhabitants and medical practitioners requested to notify all such and any insanitary conditions they come in contact with, to the Nuisance Inspector.

13.—More provision for ventilation of the main sewers, by special shafts should be undertaken at once.

14.—It should be ascertained that every dwelling House has proper drainage and ventilation, and has all wastes ^{trapped and} aerially disconnected from private and public drains or sewers.

In conclusion, Gentlemen, permit me to offer you my sincere congratulations on the progressive character of your work in 1893. I have never known a Board which so far as I can judge was more honestly desirous to make steady progress in sanitary and Public Health work. Of course as business men you are anxious to keep a sharp eye on the public expenditure. But after all there is no expenditure which pays so well and gives back such a high rate of interest as that spent in sound sanitary work. So that you require primarily and essentially to be not a financial but a health executive. The problem before us is to secure good and healthy citizens for this old England of ours. The two aims go together, for virtue and vigour are correlative, and morals and hygiene are twin sisters in development. Both are essentials of true religion in the light of the Christian Ethic, and what the best political economy aims at is adjustment of the *whole* man to the divine wisdom as expressed in the moral and hygienic laws which make the individual or the State what God intends those made in His own image to be. Not yours is it to preach but yours is it above everything else to be practical fulfillers of the science of Health, which includes a virtuous mind in a vigorous body. In so far as you secure an improvement of the conditions which make for healthy animal life, and that from an honest desire to make the world better during your own life, are you not only loyal citizens in the best sense of the Commonwealth, but whatever others may say or not say, you are truly religious in the sense of the great Teacher's life and precepts. For to build up living monuments to God's glory is after all more abiding and real worship than the erection of the most architectural or ornate building of stones and mortar. "He prayeth best who loveth best all things that God hath made," and the truest love is that which shows itself in deeds that lift up the standard of every day life in the world of which we form however humbly and infinitesimally a definite part, and whose progressive development it should be as it is intended to be, the Alpha and Omega of our individual and collective activities to promote. The lowered death-rate of the last two years as compared with what obtained when I returned to the district is equivalent to a saving of 40 lives and of hundreds of cases of illness per annum. As compared with the average death-rate of the five years preceding the sewerage of the township, our death-rates for the last two years mean a prevention of 56 deaths a year, and as compared with the years preceding the formation of a Board of

Health over 100 deaths per annum. Think of the financial gain this alone means and as compared with the average death-rate of 20 and 40 years ago there is roughly speaking an annual saving in £ s. d. at least equal, not only to your year's Local Board rates, but of all School Board and Poor Law rates, and all this without allowing anything for the value in £ s. d. of a single life as such, or taking into account the money saved in sickness by loss of wages or income which would be many thousands of pounds. The only grumblers in Eccleshill ought to be the doctors and undertakers. Had my frightfully heterodox views of 20 years since been at once accepted and carried into effect the gain would have been much more. No wonder that in enlightened and progressive towns, such as for instance Dewsbury, the chairman of their sanitary committee is enabled to say that whatever the Health Officer advises as for the Health of the Community is promptly carried out. From whatever view you take it the Vital Statistics on which I have commented ought to stimulate and gladden you. Thus the birth-rate is recovering, the total death-rate, Zymotic and Infantile death rates, are all being markedly lowered, the mean age at death is raised by many years and the average duration of life attains by years in your district a higher standard than in any Urban Manufacturing District that I know of, or even in the country at large, and undoubtedly at present you are far away the least unhealthy of any of the five towns which constitute the Calverley Conjoint Hospital District. Do not let this develop in you any Pharisaism, for remember that there are still great blots on your sanitation and that the saving of life and money is very far from what it ought to be and would have been if your bye-laws had been remodelled 15, 10, or 5 years ago, or if a Nuisance Inspector, whose whole time was devoted to the office had been appointed in 1873, concurrently with the first appointment of a Medical Officer of Health. It is very true, is it not, that "our virtues would make us proud *if* our vices whipped them not?" Let us therefore be thankful for the blessings Providence has already showered upon us and humbly reach out to those that are waiting our acceptance. If all concerned in the coming democratic developments immediately in front of us are loyal to each other, the state, the generations to come, and the enlightenments of sanitary science, we may confidently expect that, given ordinary commercial and social conditions, the progress of the past is but a shadow of what is to come, and that in another 20 to 40 years the death-rate will be more or less regularly under 12 or even 10 per 1000 of population, that all children born will then have a fair chance of not only attaining a joyous consciousness of existence but of reaching an average duration of life which more and more will be within reach for all of biblical limits as the conditions of preventible disease and premature death are by yourselves and all educated citizens made to be the exception and not the rule. This has been, and I hope will be, my own ideal, aimed at to the best of my ability, for so long as I have responsibility or opportunity.

I am, faithfully yours,

JOHN PITNEY ASTON, M.O.H.,

FELLOW OF SOCIETY OF MEDICAL OFFICERS OF HEALTH,

TO THE ECCLESHILL LOCAL BOARD OF HEALTH.

GENTLEMEN,—

I beg to report that during the year ending December 31st, 1893, the following works of a sanitary nature have been carried out under my superintendence.

Private Streets Drained, Flagged, Paved and Channelled	...	1
Public Footpaths Flagged and Channelled	... ..	120 yards
Gulleys fixed in Victoria Road, Bank, Norman Lane, New Line		17
Prospect Street Drained	... ..	95 yards
New Drains for Cottages	... ..	6
Old Drains Pulled up and Relayed	... ..	11
Privies Repaired in New Line and Rhodes Terrace	... ..	8
Old Privies pulled down and Rebuilt	... ..	20
*Water Closets put in for Mrs. Ross and Mr. Nowell	... ..	2
New Houses Built Moor Side. Fletton Terrace, Intake Road		19
Old Cottages Repaired made Tenantable,	... ..	3
Alteration of Warehouse into House	... ..	1
Disconnecting Chambers and Traps fixing	... ..	10
Cesspools Cleaned out, Prospect Street	... ..	1
+ Disinfected Houses after Fever	... ..	6
Lamps Erected	... ..	3
Ash Pits and Privies Empted	... ..	3257
Water Mains Extended (Intake Road)...	... ..	220 yards
Houses Supplied with Water	... ..	19
Houses Cut off the Water Supply	... ..	6
Nuisances Complained of all of which were Remedied	... ..	6

THOMAS HUTTON,

Surveyor, Nuisance Inspector and

Eccleshill, April 1894.

Waterworks Manager.

*In one of these instances the privy and ashpit which previously obtained was in an enclosed backyard and I reported on this 10 years ago stating that the privy contents had to be brought through the living room to the night soil cart when emptying was required. And so after all the world does move! J.P.A.

+ All the Houses in which dangerous Infectious Disease had been notified *and* not disinfected by the Nuisance Inspector were disinfected by the Conjoint Hospital curator, and his work charged to the Local Board of Health.

SPECIAL REPORT ON CHOLERAIC DIARRHŒA AND LONG STANDING NUISANCES, SEPTEMBER, 1893.

TO THE ECCLESHILL LOCAL BOARD OF HEALTH.

GENTLEMEN,—I am sorry to trouble you but it is my duty to remind you that in my Annual Report I pointed out that it was an obligation on you to assume that Cholera would come into this Country, and in order to be prepared it was essential that an Inspector of Nuisances should be appointed under the Local Government Board, as to the urgent necessity of which I have harped upon year after year. Well, Cholera has come, and is undoubtedly localized in your own County, and as yet nothing has been done in the way of preparation, as I suggested. You will remember that I further observed if Cholera did get into your District, there would be a startling revelation of long neglected sanitary evils. As an illustration, let me report on a fatal case of Choleraic Diarrhœa in an adult which has been registered since you last met. On visiting the House where the death occurred I find the House door is within 6 feet of Privies and Midden Ashpits, which are on a higher level than the House, that the Midden Ashpit is all open at the top, on loose soil without any concrete foundation, and containing decomposing liquid sewage. The two privies are intended for 13 Houses, occupied by 48 souls, and one Privy it appears is retained chiefly for two of these families, each having been provided with a key, so that 11 Houses and 39 human units have to be accommodated with one privy. Consequently there is a struggle for accommodation which often necessitates many fruitless journeys, especially on Sundays when most of the occupants are at home, and as some of the Houses are from 50 to 70 yards from the desired accommodation almost a Sabbath day's journey may be occupied in attempts to relieve nature. The sink wastes of these Houses discharge at the back into an unused quarry, and as there is no drain to carry off the sewage, and as the ends of the pipes are in some instances 6 feet or even more from the ground, the walls and ground behind are in an abominable and disgusting condition, beyond my power of adequate word painting, and which I must ask you to visit, in order to realise the sights a New Zealander might witness in Eccleshill. It is only fitting to finish off the picture, to state that the property in question faces the frontage exactly of the place of Divine Worship attended for nearly the past half century by the wealthiest, most respectable, and most influential part of the community. In the same street opposite the new Infant Board School, equally unsightly and insanitary conditions may be witnessed. This is in the Central Ward. In the South Ward near the Eccleshill Pottery there is a triangular plot of waste ground bounded by 3 roads, and upon this are pigstyes, hen places and stables, all in promiscuous confusion, and giving off foul nauseating effluvia, dangerous to inhale by passers on the highways. To come back again to the street first named in the Central Ward; there is property at the bottom, in Killinghall Road where a Privy has existed in a cellar for 28 years, discharging into a rubble drain passing along the floor of the cellar and carrying the sink sewage of 4 or 5 Houses in the aforesaid street, whose untrapped waste pipes broken off just outside the wall, discharge their sewage into loose stones and soil covering the rubble drain, and in one instance the sink pipe discharges into the cellar in question. Then take the North Ward and the

properties in the cabin at Greengates where Scarlet Fever outbreaks occurred 9 months ago, and on which I reported at the time, where there are 12 houses to three privies with open offensive midden ashpit and also on higher ground than the dwellings with, in one case, pigstyes and midden ashpits with liquid sewage soaking and draining in open channels as gravity determines, across the back yards. There again nothing has been done in spite of my urgent and definite report at the time. In some of these Houses in the cabin, untrapped sink wastes go in drains under the House floor, and in one Dairy Farm the open midden ashpit is made of rubble or dry wall with pigstyes, stables, manure heaps, all in a grossly insanitary condition. And so I might go on indefinitely, but I trust I have said sufficient to convince you that not another *day* is to be lost in providing the sanitary essential of an efficient Sanitary Inspection. As you all know the number of offices and duties crowded on your present Surveyor make it (as I have continuously reported to you and the Local Government Board for going on to 20 years) absolutely impossible for him to do the sanitary work at all effectively. You ought to do your duty to your Township quite irrespective of what other Townships do, but I may say you are far behind your neighbours in this matter of Nuisance Inspection. It is only right to remark that the evils of which I have to report are a heritage of neglect from your predecessors, although the Local Government Board have had my Annual and Special Reports, sometimes of detailed length, as to this matter regularly sent them. And I regret the responsibility of remedying them, falls upon you, who no doubt feel that it is scarcely fair that criticisms should seem to be made on those, who like yourself, are not justly held to be in default. When Cholera threatened us many years ago I made a special report on this and other matters which was duly forwarded to the Local Government Board, but nothing practical resulted.

As soon as the Model Bye-laws are sanctioned and in force, and you have a Sanitary Inspector duly appointed, I will undertake to provide you with an ample and detailed statement of your general sanitary condition, but pending these (or certainly the first, viz: the Byelaws) any such report would be a mere waste of energy for me and a loss of time for you.

I am Gentlemen,

Your obedient Servant,

Eccleshill,

JOHN PITNEY ASTON,

September 5th, 1893.

Medical Officer of Health.

Note April 1894.—Consequent upon the above a Sanitary Inspector under the Local Government Board was appointed who took office on January 1st, 1894, at a salary of £60 per annum, one half to be repaid by the County Council. Model Byelaws were adopted by the Board in December 1892, and have been provisionally confirmed in 1894, but are not yet actually in force. The House with Privy in the cellar and the attendant insanitary conditions above referred to has been drained properly, but the evils described in connection with the Choleraic Diarrhoea Death and the Scarlet Fever outbreak at Greengates still obtain.

I may here give as another long standing unremedied nuisance the Moorside Terrace Privy Ashpits, which are grossly defective, and their liquid sewage soaking all over the back yards. The Idle Health Officer tells me they have no privy arrangements so defective as these in Idle and I have specially reported on them year after year.

CALVERLEY INFECTIOUS DISEASES HOSPITAL.

REGULATIONS FOR PREVENTING THE SPREAD OF SMALL-POX INFECTION.

1.—The doors of the enclosure containing the buildings used for Small-Pox cases shall be kept locked, the keys shall be kept by the Curator or Matron only, and the doors shall be opened only in their presence.

2.—Communication between the Small-pox wards and the administrative block shall be by telephone only.

3.—A separate vehicle shall be used for the removal of Small-pox cases and infected articles, as clothing, bedding, etc., having been in contact with such patients.

4.—The Curator and his assistant shall use special clothing, and such clothing, as well as the vehicles, beds, blankets, wrapping, or other articles used, shall be thoroughly disinfected, after each removal of Small-pox patients, or other work bringing them into contact with such patients.

5.—All food for the Small-pox wards must be placed immediately inside the enclosure in the presence of the Curator or Matron, and no utensil may be removed from the Small-pox wards unless it has been kept for twenty minutes in boiling water, and such process of disinfection must be repeated when the utensils reach the administrative block.

6.—All waste produced in the Small-pox wards must be burnt there.

7.—All foul linen or other similar articles requiring removal to the laundry must be immersed in the carbolic tank within the enclosure, remain there for at least twelve hours, and be removed only under the supervision of the Curator or Matron to the tank attached to the laundry.

8.—The medical attendant shall arrange to visit the Small-pox wards after having seen the other patients, if any.

9.—None of the persons employed in the Small-pox wards may leave the enclosure unless they have undergone efficient disinfection; and convalescent patients must be similarly treated before being discharged.

10.—In case of death in the Small-pox wards the body shall be immediately wrapped in two sheets soaked with 1 in 20 carbolic solution, and taken to the Mortuary, Interment to follow as soon as possible, direct from the Mortuary. The Mortuary to be disinfected after being used.

Regulations as to Visitors.

1.—No visitor to be admitted to the Small-pox wards without a pass signed by the Medical Attendant in charge, and no such pass shall be issued except in cases where a fatal issue is expected.

2.—No pass shall be granted to any person not recently vaccinated, or who, in the opinion of the Medical Attendant in charge, is susceptible of the disease.

3.—Each visitor must put on a wrapper provided for the purpose, and before leaving the premises must wash the hands and face, and use whatever disinfection is required by the Medical Officer.

FACSIMILE of MEDICAL PRACTITIONER'S NOTIFICATION CARD for the ECCLESHELL DISTRICT.

The Infectious Disease (Notification) Act, 1889.

ECCLESHELL SANITARY DISTRICT.

The following are the Compulsory Notifiable Diseases, viz. :—

SMALL POX,	SCARLET FEVER,	ENTERIC FEVER,
MEMBRANOUS CROUP,	ERYSIPELAS,	PUPERIAL FEVER,
DIPHTHERIA,	TYPHUS FEVER,	RELAPSING FEVER,
CONTINUED FEVER, CHOLERA.		

The following are notifiable during pleasure of the Authority in Eccleshill, and a fee of 2/6 is paid for each Household or Family notified by the

Medical Attendant, viz. :—

ROTHLEN, | WHOOPING COUGH, | MUMPS, | DYSENTERY,
MEASLES, | CHICKEN POX, | PHTHISIS, | CHOLERAIC DIARRHOEA.

N.B.—Please notify as a matter of courtesy, cases of PLUMBISM, CANCER, RHEUMATIC FEVER, INFLUENZA, PNEUMONIA, and any Nuisance or conditions dangerous to public health.

I notify (a) _____ at (b) _____

of (c) _____ Date _____

Signed _____

(a) Disease or Nuisance.
(b) Name of Householder.
(c) Address of " Address _____

If in the opinion of the Medical Adviser, removal of the Patient to the Fever Hospital is desirable, he will oblige by inserting his initials here.....

Reduced Facsimile of Bill put upon Dwellings with Small-Pox Patients not removed to Isolation Hospital. Similar Bills, when deemed necessary, have been used for Scarlet Fever.

NOTICE.

This Building is declared to be a temporary place for the reception of a person or persons now therein suffering from

S M A L L - P O X.

By Order,

JOS. RICHARDSON,

Solicitor, Clerk to the Eccleshill Local Board.

Table Shewing Results of Sewage Alumina Ferric Treatment
at Apperley Bridge.

SEWAGE.					NATIVE SEWAGE.	ALUMINA FERRIC EFFLUENT.
Ammonia.	Physical Characters				Turbid Purple Colour.	Turbid Brown Colour.
					Slight Sediment.	Slight Sediment.
	Re-action				Acid.	Alkaline.
	Parts per Million.	Free			8	3.
Albuminoid			3	2.2		
Solids.	Grs. per Gallon.	Total in Solution ..			65	52.5
		(a) Volatile			42.5	45
		(b) Fixed			12.5	7.5
Chlorine: Grs. per Gallon..					3.2	2.3
Nitrites						Some.

ANALYSIS OF 3 SAMPLES OF WATER,

Viz. :—

1. Fagley Beck Water ;
2. Hospital Effluent into Fagley Beck ;
3. Hospital Effluent Tank.

ANALYTICAL RESULTS IN GRAINS PER GALLON.

	Beck above Sewer.	<i>Beck opposite</i> Hospital Effluent	<i>Hospital Effluent</i> Beck Tank.
Total Solid Matter ...	35.0	65.0	28.0
Organic and Volatile Matter	11.0	15.0	6.0
Saline Matter	24.0	50.0	22 0
Chlorine	1.4	3.2	1.0
Nitrites	None	Rather Large	None
Nitrates	Large	Small	Rather Large
Free Ammonia ... ..	.0260	1 8200	.0070
Organic Ammonia ... ..	.0028	.0700	.0700

F. *M.* RIMMINGTON AND SONS.

Copy of Syllabus of Lectures which were given at
1893
HYGIENE,
Or, The Science of Health.

A CONCURRENT
COURSE OF LECTURES
HAS BEEN ORGANISED FOR THE
Calverley, Eccleshill, Farsley, Idle and Pudsey Townships,
And the following are the Arrangements for Eccleshill.

Wesleyan School, Greengates,
Monday, February 13th, 1893.
“THE AIR WE BREATHE.”
C. E. HOLLINGS, M.O.H.,
Calverley.
JOHN GARNETT, Esq., will preside.

Mechanics' Institute, Eccleshill.
Monday, February 20th, 1893.
“THE HOUSE WE LIVE IN.”
W. L. HUNTER, D.P.H.,
Pudsey.
Mrs. TOM MITCHELL will preside.

Mechanics' Institute, Eccleshill.
Monday, February 27th, 1893.
* “THE GERMS WE SUFFER
FROM.”
R. HONEYBURNE, M.O.H.,
Idle.
Mrs. W. H. HUTTON will preside.

Mechanics' Institute, Eccleshill.
Monday, March 6th, 1893.
“THE WATER WE DRINK.”
F. W. LAMBERT, M.O.H.,
Farsley
Dr. NEWSTEAD will preside.

Mechanics' Institute, Eccleshill.
Monday, March 13th, 1893.
* “THE FOOD WE EAT.”
J. P. ASTON, M.O.H.,
Eccleshill.
Mrs GLEAVE will preside.

Mechanics' Institute, Eccleshill.
Monday, March 20th, 1893.
“THE AIR WE BREATHE.”
C. E. HOLLINGS, M.O.H.,
Calverley.
Rev. W. MANNING will preside.

Chair to be taken each evening at 8 o'clock. **ADMISSION FREE.**
MAGIC LANTERN ILLUSTRATIONS by PERCY NEWSTEAD, Esq.
AT EACH LECTURE.

*These Lectures were also given in the Wesleyan School, Greengates,